

Date: Friday, 19/12/2008 2:56:57 PM  
 User: Julie Dawson

# Process Sheet

Customer : CU-DAR001 Dart Helicopters Services Drawing Name : 206L AFT X-TUBE  
 Job Number : 44215  
 Estimate Number : 10973  
 P.O. Number :  
 This Issue : 19/12/2008 S.O. No. :  
 Prsht Rev. : NC Part Number : D206667203BL  
 Drawing Number : D206-667-243 REV C 08/12/22  
 Project Number : N/A  
 First Issue : 19/12/2008 Type : CROSSTUBES Drawing Revision :  
 Material :  
 Previous Run : 43494 Due Date : 02/02/2009 Qty: 1 Um: Each  
 Written By :  
 Checked & Approved By : JUD 08.12.19.  
 Comment : Est Rev:F 05.09.01 Add holes for compatibility with Bell  
 Skidtubes KJ/JLM  
 Est Rev:G 08-06-03 update as per DSI9415 (ECN1198) DD  
 verified by:ec  
 Est Rev:H 08-07-18 remove thread masking in step 12 DD  
 verified by:EC

## Additional Product

Job Number:



Seq. #: Machine Or Operation: Description :

1.0 DC DOCUMENT CONTROL



AG for JLD 09/02/02



Comment: DOCUMENT CONTROL

Photocopy bluefile and create labels as per PPP D206-667-203 CHG003

S 09/02/04

2.0 D206667203TRN Crosstube Turning Detail



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

CROSSTUBE TURNING DETAIL

batch B-43052

MB 09-01-05

3.0 BENDING BENDING MACHINE - SKIDTUBES



MB 09-01-05



Comment: BENDING MACHINE

Bend tube as per Dwg D206-667-243 using CNC bender program 206L-AF and Folio FT

4.0 QC15 DIMENSIONAL CHECK OF X-TUBES



09-01-06



Comment: DIMENSIONAL CHECK OF X-TUBES

5.0 CROSSTUBES CROSSTUBES RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

1-Drill pilot holes in tube using drill Jig DT8583 & DT8584 as per Dwg D206-667-243. Drill all (3) top holes.

2-Drill and Ream all holes in tube to finish size using drill Jig DT8583 & DT8584 as per Dwg D206-667-243

MB 09-01-07

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

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Drawing Name: 206L AFT X-TUBE

Job Number: 44215

Part Number: D206667203BL

Job Number:



Seq. #:

Machine Or Operation:

Description :

Check dimensions between holes on all four sides.

3-Flip tube and switch drilling Jigs from right to left, left to right. Locate Jigs off existing holes using "T" pins.

4-Drill pilot holes using drill Jig DT8583 & DT8584 as per Dwg D206-667-243. Drill only the top (2) holes.

5-Drill & ream the top (2) holes to finish size using drill Jig DT8583 & DT8584 as per Dwg D206-667-243

6-Drill Fwd rivet holes using drill Jig DT8789FWD as per Dwg D206-667-143. Note: Fwd side has 3x top holes.

7-Drill Aft rivet holes using drill Jig DT8789 as per Dwg D206-667-243.

8-C'sink holes as per Dwg D206-667-243.

9-Deburr & Inspect for surface damage. Repair damage within limits as per Dwg D206-667-243

10-Scribe part # and batch # using vibrating stylus as per Dwg D206-667-243  
Inside of Cuff(Donot engrave on outside of tube)

MB  
09-01-07

MB 09-01-07

MB 09-01-07

6.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

Chemical Conversion Coat as per QSI 005 4.1

MS  
09-01-07

7.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

S 09/01/08 (R)

8.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

S 09/01/08 (R)

9.0

OUTSIDE SERV.11

OUTSIDE SERVICE -CROSSTUBES



Comment: Sub-Contracting OUTSIDE SERVICE -CROSSTUBES

P.D. 8880 u 09/01/19

10.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Inspect for transit damage

Ensure copy of NDT results attached to work order.



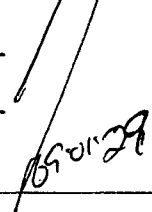



09/01/19 09/01/19

10.0

Purchasing

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: D206-667-203BL PAR #: N/A Fault Category: Prod/x-tube NCR: Yes No DQA: D Date: 09/02/06  
 Resolution: re-work Disposition: re-work QA: N/C Closed: A Date: 09/02/11

NCR: <u>44215</u>		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
9/1/06	# 10.0	small indication was found at NDT testing causing tube # not too pass. RC mark was not visible at inspection		Build a feeder new	 09-01-19	 09-01-29	 09-01-29	 09/01/06
				Re alidate as per ASTM5	 09-01-19			
				Re inspect under new P/O and attached new copy of NDT Results				

NOTE: Date & initial all entries

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Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: 206L AFT X-TUBE

Job Number: 44215

Part Number: D206667203BL

Job Number:



Seq. #:

Machine Or Operation:

Description :

11.0

~~Q66~~

DIMENSIONAL CHECK

QCS



①

Comment: Inspect for damage & ensure results are as per Dwg D206-667-103

09-01-29

12.0

SPRAY PAINTING

SPRAY PAINTING



Comment: SPRAY PAINTING

1-Prime inside and outside crosstube as per QSI 005 4.2 - GREY

2-

-PAINT DELFLEET BLUE

-CLEAR DELFLEET

25 09-01-29

13.0

QC14

INSPECT SPRAY PAINT



Comment: Inspect Spray Paint

Wrap in plastic bag to protect from scratches

09-01-30

14.0

D2873045

Nut Plate Assembly



Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)

Pick:

Qty Part number

Description Batch

2 D2873-045

Nut Plate

42784 / 43409

gone to Ireland

25 09-01-29

15.0

D2873043

Nut Plate Assembly



Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)

Pick:

Qty Part number

Description Batch

2 D2873-043

Nut Plate

43176

25 09-01-29

16.0

MS20601AD4W10

RIVET



Comment: Qty.: 14.0000 Each(s)/Unit Total : 14.0000 Each(s)

Pick:

Qty Part number

Description Batch

14 MS20601AD4W10 Rivet

110219

25 09-01-29

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

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Drawing Name: 206L AFT X-TUBE

Job Number: 44215

Part Number: D206667203BL

Job Number:



Seq. #:

Machine Or Operation:

Description :

17.0

CROSSTUBES

CROSSTUBES RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

1-Install nut plates as per Dwg D206-667-243.

RT 09-01-29

18.0

D3595075450

RUBBER CUSHION .75" x 4.50



Comment: Qty.: 4.0000 Each(s)/Unit Total: 4.0000 Each(s)

RUBBER CUSHION .75" x 4.50

341108

RT 09-02-02

19.0

D28921

Support



Comment: Qty.: 2.0000 Each(s)/Unit Total: 2.0000 Each(s)

Pick:

Qty Part number Description Batch

2 D2892-1

Support

44372

RT 09-02-02

20.0

MS2192022

Clamp(per MIL-DTL-8783C)



Comment: Qty.: 4.0000 Each(s)/Unit Total: 4.0000 Each(s)

Pick:

Qty Part number Description Batch

4 MS21920-22

Clamp

106167

RT 07-02-02

21.0

SKIDTUBES 1

SKIDTUBESS RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

1-Install support using 0.03" to 0.06" thick layer of magnobond 6398 per QSI 015. Let cure for 12h after installation and prior to packaging. Note: (3) top holes should be facing up.

A/R Magnobond 6398 : 109900

RT 09-02-02

2-Install supports and clamps as per Dwg D206-667-243. Torque clamps to 80-100 in lb

22.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

10-02-03

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



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## Process Sheet

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Drawing Name: 206L AFT X-TUBE

Job Number: 44215

Part Number: D206667203BL

Job Number:



Seq. #:	Machine Or Operation:	Description :
---------	-----------------------	---------------

23.0	PACKAGING 1	PACKAGING RESOURCE #1
------	-------------	-----------------------



Comment: PACKAGING RESOURCE #1  
Pick Packing Kit

24.0	AN534A	Bolt
------	--------	------



Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s)  
Bolt  
Batch: M109752

25.0	MS21042L5	Nut
------	-----------	-----



Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s)  
Nut  
Batch: M110382

26.0	AN510A	Bolt
------	--------	------



Comment: Qty.: 10.0000 Each(s)/Unit Total : 10.0000 Each(s)  
Pick:Packing Kit  
Qty Part number Description Batch  
10 AN5-10A Bolt M109752

27.0	AN532A	Bolt
------	--------	------



Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s)  
Pick:Packing Kit  
Qty Part number Description Batch  
4 AN5-32A Bolt M110363

28.0	AN960JD516	Washer
------	------------	--------



Comment: Qty.: 18.0000 Each(s)/Unit Total : 18.0000 Each(s)  
Pick:Packing Kit  
Qty Part number Description Batch  
18 AN960JD516 Washer M109752

Page 5 12/13 1

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

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Drawing Name: 206L AFT X-TUBE

Job Number: 44215

Part Number: D206667203BL

Job Number:



Seq. #:

Machine Or Operation:

Description :

29.0

QC4

INSPECT 100% KITS FOR COMPLETENESS



Comment: INSPECT 100% KITS FOR COMPLETENESS

509/02/04

30.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and pack for shipping as per PPP D206-667-203

Location: \_\_\_\_\_

PPP Rev: \_\_\_\_\_

Reed

509/02/04

31.0

QC21

FINAL INSPECTION/W/O RELEASE



Comment: FINAL INSPECTION/W/O RELEASE

09/02/05

Job Completion



MF 09-02-04

D 206 667 203 B B44215

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

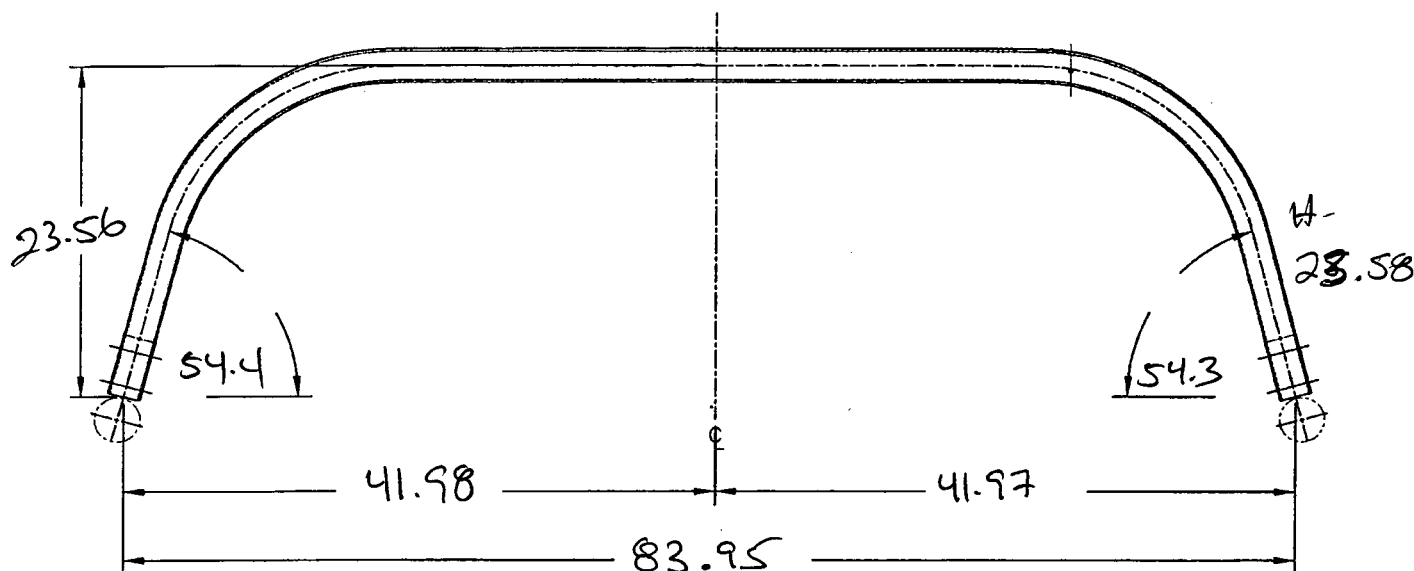
Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

DART AEROSPACE LTD		Work Order: 44215
Description: Crosstube High Aft (206L)		Part Number: D206-667-203
Inspection Dwg: D206-667-243 Rev: B		Page 1 of 1

Required Dimension	Min	Max
Height	23.46	23.58
1/2 Span	41.86	41.98
Angle	54	56
Total Span	83.72	83.96



Comments

QC15 Inspection	<i>[Signature]</i>
Date	07.01.06

Rev	Date	Change	Revised by	Approved
A	07.02.06	New Issue	KJ/JM <i>[Signature]</i>	<i>[Signature]</i>

Item	Qty	Part Number	Description
	-243		
1	X	D206-667-243	CROSSTUBE ASSEMBLY (206L HIGH AFT)
2	1	D6004-115	CROSSTUBE
3	2	D2873-043	NUT PLATE
4	2	D2873-045	NUT PLATE
5	2	D2892-1	SUPPORT
6	4	D3595-063-450	RUBBER CUSHION
7	4	MS21920-22	CLAMP
8	14	MS20601AD4W10	RIVET (OR NAS9302B-4-10)
9	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299- 947-100, TYPE II, CLASS 2 ADHESIVE)

**GENERAL NOTES:**

- 1) MATERIAL: MANUFACTURED FROM D6004-115  
FINISHED LENGTH = 104.91±0.020
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1  
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2  
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER "D206-667-243" AND BATCH NUMBER ON  
INSIDE OF CUFF USING VIBRATING STYLUS.
- 7) WEIGHT: 21.9 lbs
- 8) PART IS SYMMETRIC ABOUT CENTERLINE.
- 9) RUN CUTTER OFF PART WHERE INDICATED. BLEND OUT EDGE LONGITUDINALLY,  
TRANSITION SHOULD BE SMOOTH.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 8 PASSES. MAXIMUM TUBE FLATTENING DUE  
TO BENDING IS 6% BASED ON O.D.
- 11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 12) INSTALL D2892-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 PER  
QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 13) INSTALL MS21920-22 CLAMPS WITH D3595-063-450 RUBBER CUSHIONS TO SECURE THE  
D2892-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMP MECHANISMS ARE  
LOCATED ON CROSSTUBE SUPPORTS.
- 14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE  
OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS  
SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT  
LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS ARE SHOWING IN  
SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

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WORK ORDER  
NO. 44215

C	REVISE GENERAL NOTES/PART LIST (ZN D7-1); REORGANIZED VIEWS AND REFORMATTED DRAWING TO CURRENT STANDARDS. D3595-063-450 WAS D2856-400-773 (ZN D6-2 & A5-2); REMOVED REF. & ADD TOLERANCES (ZN 4-3, C5-3, D3-3); RELOCATED FLAG #6 (ZN A8-3) PER NCR 210; MOVED TURNING DETAIL & UPDATED TOLERANCE TO SHEET 4.	RF	08.11.06
B	ADD HOLES AND NUT PLATES FOR COMPATABILITY WITH BHT/AA SKUDTUBES	PH	05.07.26
A	NEW ISSUE	CP	00.11.17
REV.	DESCRIPTION	BY	DATE
DESIGN	RF	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	RF	DRAWING NO.	REV. C
MFG. APPR.	RF	D206-667-243	SHEET 1 OF 4
APPROVED	RF	TITLE	SCALE
DE APPR.	RF	CROSSTUBE ASS'Y (206L HIGH AFT)	NTS
DATE	08.11.06	COPYRIGHT © 2000 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

8

7

6

5

4

3

2

1

D

C

B

A

D

C

B

A

12 D2892-1 SUPPORT  
2 PL

15 MS21920-22 CLAMP  
4 PL

13 D3595-063-450  
RUBBER CUSHION  
4 PL, (UNDER CLAMP)

B

10.03

B

A4-2

D206-667-603

B7-2

B2-2

D206-667-243  
ASSEMBLY DETAIL  
(VIEW LOOKING FWD)

C

D2873-043  
NUT PLATE

MS20601AD4W10  
RIVET, 4 PL

D2873-045  
NUT PLATE

MS20601AD4W10  
RIVET, 3 PL

90°  
REF

VIEW A-A:  
CUFF DETAIL  
SCALE 4X

C7-2

FWD

6°

13 15  
MS21920-22 CLAMP REF

12  
D2892-1 SUPPORT REF

D3595-063-450  
RUBBER CUSHION  
REF

D5-2 SECTION B-B  
SCALE 5X

C

RELEASED  
08/11/12 MP

D2873-043  
NUT PLATE

MS20601AD4W10  
RIVET, 4 PL

D2873-045  
NUT PLATE

MS20601AD4W10  
RIVET, 3 PL

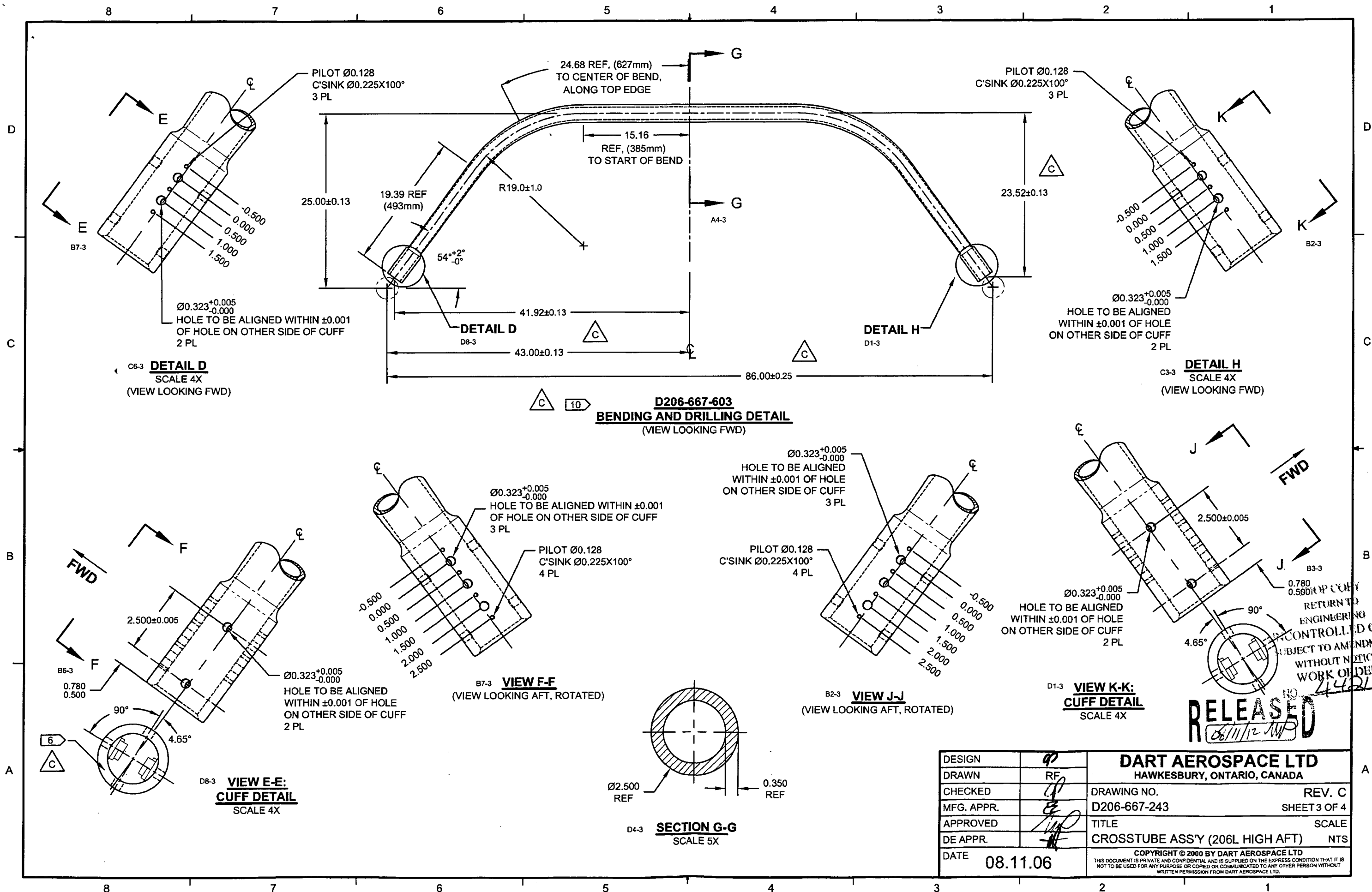
90°  
REF

VIEW C-C:  
CUFF DETAIL  
SCALE 4X

C2-2

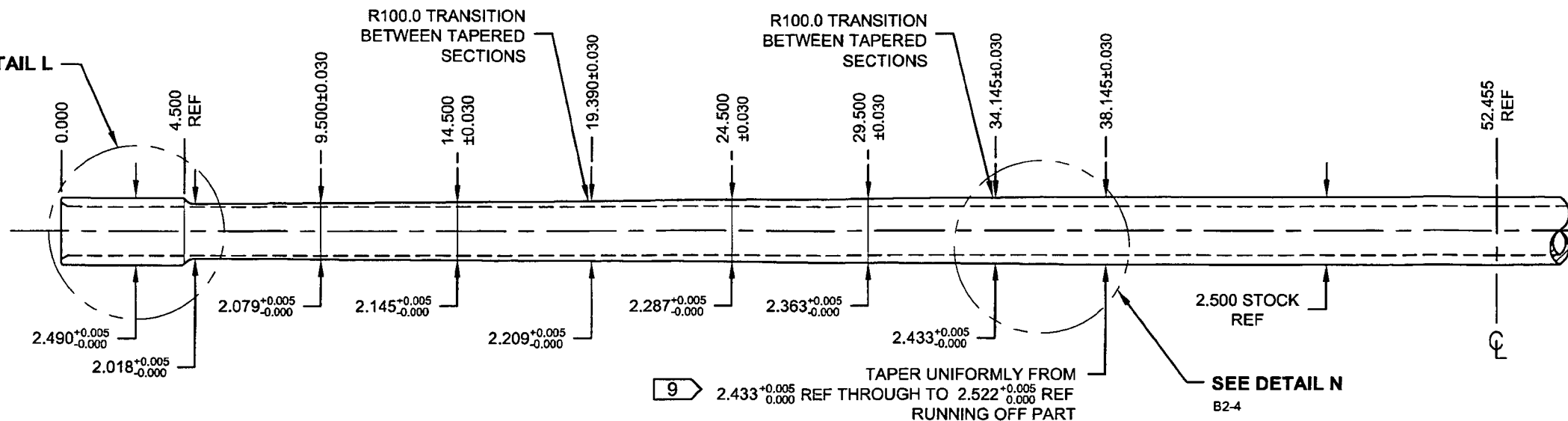
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WITHOUT NOTICE  
WORK ORDER  
NO. 44215

DESIGN	97	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	JP	DRAWING NO.	REV. C
MFG. APPR.	JP	D206-667-243	SHEET 2 OF 4
APPROVED	JP	TITLE	SCALE
DE APPR.	JP	CROSSTUBE ASS'Y (206L HIGH AFT)	NTS
DATE	08.11.06	COPYRIGHT © 2000 BY DART AEROSPACE LTD	
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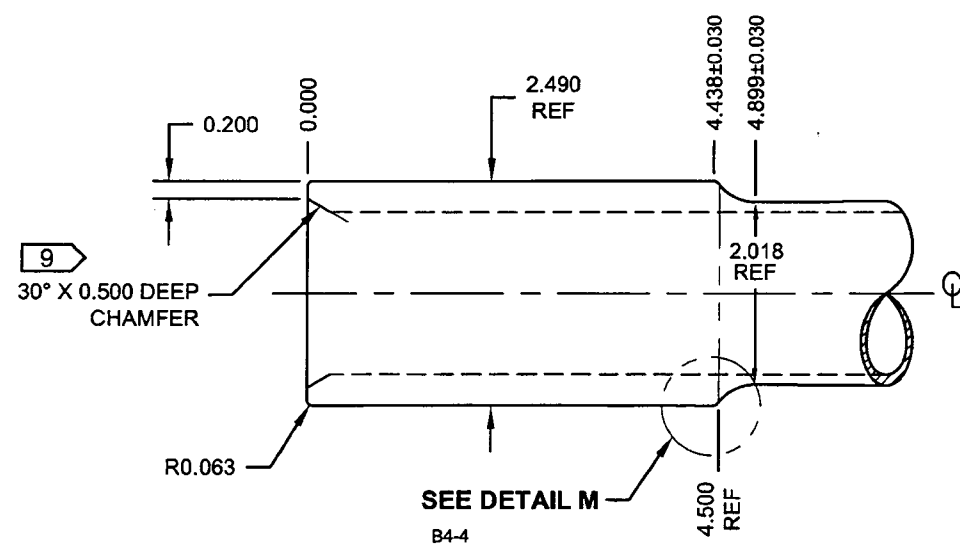




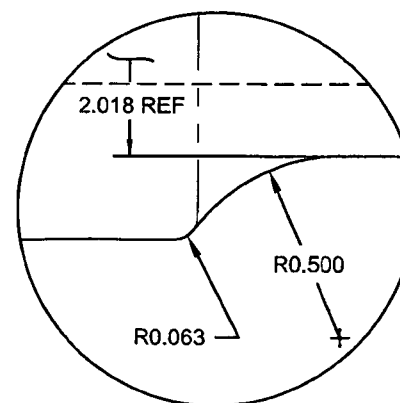
SEE DETAIL L  
B7-4



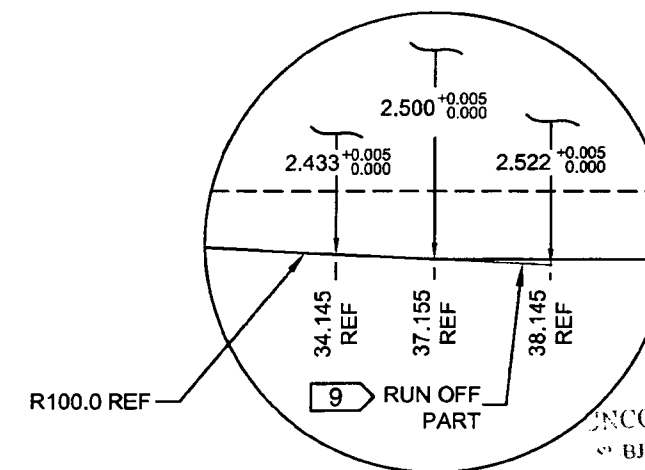
**TURNING DETAIL**



**DETAIL L: CROSSTUBE CUFF**  
NOT TO SCALE



**DETAIL M: CUFF TRANSITION**  
NOT TO SCALE



**DETAIL N: TAPER RUN-OFF**  
NOT TO SCALE

SHOP COPY  
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ENGINEERING  
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SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
WORK ORDER  
NO. 214215

**RELEASED**  
08/11/12

DESIGN	9	<b>DART AEROSPACE LTD</b>	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	CP	DRAWING NO.	REV. C
MFG. APPR.	EF	D206-667-243	SHEET 4 OF 4
APPROVED	MP	TITLE	SCALE
DE APPR.	ST	CROSSTUBE ASS'Y (206L HIGH AFT)	NTS
DATE	08.11.06	COPYRIGHT © 2000 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	



## LIQUID PENETRANT TEST REPORT

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PAGE 1 OF

CLIENT DART AEROSPACE DATE JAN 16-2009 TIME AM ☐ PM ☐  
ATTENTION LINDA LAELLE ACUREN JOB No. 188-09-001278  
ADDRESS 1270 ABERDEEN ST POWO No. 2000  
HAWKES BURY ONT WORK LOCATION MAIN SHOP-HAWKES  
ACCEPTANCE STD. ASTM1417 REV./DATE 200  
PROJECT X-TUBES QSI-038  
ITEM(S) EXAMINED 7 ITEMS. FLUORESCENT DIE

JOB DESCRIPTION PROCEDURE No. LT-XXXX REV./DATE TECHNIQUE No. LT-XXXX-XXY REV./DATE

PART No. MATERIAL ALODINED ALUM. THICKNESS  
SCOPE WET FLUORESCENT LIQUID PENETRANT INSPECTION  
CARRIED OUT ON 100% EXTERNAL

## TEST DETAILS

METHOD ☒ FLUORESCENT ☐ VISIBLE ☒ WATER WASH ☐ SOLVENT REMOVABLE ☐ POST EM  
FAMILY BRAND MAGNAFLUX BLACK LIGHT S/N 8171 ☐ OUTPUT > 1000  $\mu$ W/cm<sup>2</sup> ☐ AMBIENT  
PENETRANT ZL 67 MINIMUM DWELL TIME 45 MIN. LIGHTING EQUIP. ☐ FLASHLIGHT ☐ TROUBLELIGHT ☐ OUTPUT > 100 fc @  
PENETRANT REMOVER H2O MINIMUM DRY TIME >10 MIN. OTHER  
DEVELOPER SK052 MINIMUM DWELL TIME 10 MIN. LIGHT METER S/N CAL DUE DATE FEB  
DEVELOPER TYPE ☒ NON AQUEOUS ☐ AQUEOUS ☐ DRY

## TEST SURFACE

SURFACE CONDITION ☐ AS GROUND ☐ AS WELDED ☐ MACHINED ☐ SHOT BLASTED ☒ CLEAN BARE ME  
SURFACE TEMPERATURE ☐ < -4°C/ 20°F ☐ -4°C/ 20°F TO 10°C/ 50°F ☐ 10°C/ 50°F TO 52°C/ 125°F ☐ > 52°C/ 125°F

RESULTS- ( ☐ METRIC ☐ IMPERIAL )

PART IDENTIFICATION ACCEPT/REJECT

1 -	<u>B - 44275 - 443052</u>	<u>SC 1</u>	<u>44215</u>
1 -	<u>B - 44156 - 44193</u>	<u>✓</u>	
1 -	<u>B - 44155 - 44192</u>	<u>✓</u>	
1 -	<u>B - 44378 - 44139</u>	<u>✓</u>	
1 -	<u>B - 44379 - 44140</u>	<u>✓</u>	
1 -	<u>B - 43330 - 44384</u>	<u>✓</u>	
1 -	<u>B - 43051 - 44214</u>	<u>✓</u>	

NO INDICATION WAS LOCATED ON THIS PIECE. WILL BE SANDED TO CO FORM, AND REEXAMINED AT LATER DATE.

ml 09 01 19

## Scope of Services

The agreement of Acuren Group Inc. to perform services extends only to those services provided for in writing. Under no circumstances shall such services extend beyond the performance of the requested services. It is expressly that all descriptions, comments and expressions of opinion reflect the opinions or observations of Acuren Group Inc. based on information and assumptions supplied by the owner/operator and are not intended nor can they be representations or warranties. Acuren Group Inc. is not assuming any responsibilities of the owner/operator and the owner/operator retains complete responsibility for the engineering, manufacture, repair and use decisions as data or other information provided by Acuren Group Inc. In no event shall Acuren Group Inc.'s liability in respect of the services referred to herein exceed the amount paid for such services.

## Standard of Care

In performing the services provided, Acuren Group Inc. uses the degree, care and skill ordinarily exercised under similar circumstances by others performing such services in the same or similar locality. No other warranty, expressed, implied, is made or intended by Acuren Group Inc.

## SIGNATURES

CLIENT REPRESENTATIVE Julie Dawson SIGNATURE Julie Dawson DTR # 19804  
TECHNICIAN (SIGNATURE): Mike Johnston REPORT REVIEWED BY:  
NAME (PRINT): Mike Johnston NAME INIT  
CGSB LEVEL II SNT LEVEL CGSB LEVEL SNT LEVEL  
CGSB REG. No 0666 CGSB REG. No

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PTS



Client: DART AEROSPACE  
Contact: LINDA LACELLE  
Location: 1270 ABERDEEN  
Description: X-TUBES, 7 PCS.  
Report #'s: F. L. P. I.

## Daily Time Report

E- 19804

Form dated Sep 2005

Job #: 188-04-001278  
Day: Sun Mon Tues  
P.O. #: \_\_\_\_\_  
Vehicle # 579

Date: JAN-16-2009  
 Wed                  Thurs                  (Fri)                  Sat  
 W.O #: 108-09-001278  
 Camera #:                     

[illegible]

RADIOGRAPHIC UNIT PRICING																					
Weld Diameter												Long Seam					Circ. Seam				
Schedule / Thickness												Thickness					Thickness				
Quantity												Lineal Ft.					Lineal Ft.				

Film: \_\_\_\_\_ Pcs. 2 ¾ x 17"  
 \_\_\_\_\_ Pcs. 3 ½ x 17"  
 \_\_\_\_\_ Pcs. 4 ½ x 17"  
 \_\_\_\_\_ Pcs. 14" x 17"  
 \_\_\_\_\_ Pcs.

Consumables:

WET FLUORESCENT.  
AS PER -

Equipment:

Client Representative:

Jul Dawson

Place a check mark in each safety check area as completed	
C/C	CAMERA CHECK
S/E	SAFETY EQUIPMENT CHECK
S/C	SURVEY METER CHECK
B/S	BARRIER & SIGN INSTALLED
C/L	CAMERA LOCKED & SECURELY STORED
C/S	CAMERA SURVEYED AFTER EACH USE

EXPENSES
NOTES

**ACUREN 1-877-299-2857**

<b>Oakville</b>	(905) 825-8595 • Fax (905) 825-8598
<b>Sarnia</b>	(519) 336-3021 • Fax: (519) 336-8220
<b>Sudbury</b>	(705) 522-1849 • Fax (705) 522-9926
<b>Halifax</b>	(902) 497-3870 • Fax (902) 445-5090
<b>North Bay</b>	(705) 840-8107 • Fax (705) 476-6683
<b>Val D'Or</b>	(819) 856-6789 • Fax (819) 825-9564

<b>Cambridge</b>	(519) 622-3112 • Fax (519) 622-1326
<b>Cornwall</b>	(613) 931-1261 • Fax (613) 931-2777
<b>Saint John</b>	(506) 847-0194 • Fax (506) 847-0194
<b>Thunder Bay</b>	(807) 475-4240 • Fax (807) 577-2017
<b>Gaspé</b>	(418) 392-3618 • Fax (418) 392-4114
<b>Hull</b>	(819) 360-0685 • Fax (819) 827-3513



# LIQUID PENETRANT TEST REPORT

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CLIENT DART AEROSPACE DATE JUN-20-2009 TIME AM ☒ PM ☐  
ATTENTION LINDA ACUREN JOB NO. 188-09/001282  
ADDRESS 1270 ABERDEEN ST POWO NO. 8085  
HAWKES BURY, ONT. K6A-1K7 WORK LOCATION MAIN SHOP - HAWKESBURY  
ACCEPTANCE STD. ASTM 1417 REV./DATE 2007  
PROJECT F.P.I ON MACHINED PARTS AND CROSS TUBES  
ITEM(S) EXAMINED 42 MACHINED PIECES.  
3 CROSSTUBES 100% EXTERNAL AND ONE CROSSTUBE REEXAMINE

JOB DESCRIPTION PROCEDURE NO. LT-XXXX REV./DATE TECHNIQUE NO. LT-XXXX-XXX REV./DATE  
PART NO. MATERIAL MACHINED ALUM THICKNESS  
SCOPE WET FLUORESCENT LIQUID PENETRANT INSPECTION  
CARRIED OUT ON 100% EXTERNAL.

TEST DETAILS  
METHOD ☒ FLUORESCENT ☐ VISIBLE ☒ WATER WASH ☐ SOLVENT REMOVABLE ☐ POST EMULSIFIED  
FAMILY BRAND MAGNAFLUX BLACK LIGHT S/N 8171 ☐ OUTPUT > 1000  $\mu$ W/cm<sup>2</sup> ☐ AMBIENT < 2 fc  
PENETRANT 2L 67 MINIMUM DWELL TIME 5-10 MIN. LIGHTING EQUIP. ☐ FLASHLIGHT ☐ TROUBLELIGHT ☐ OUTPUT > 100 fc @ SURFACE  
PENETRANT REMOVER 1120 MINIMUM DRY TIME >10 MIN. OTHER  
DEVELOPER SKD 52 MINIMUM DWELL TIME 10 MIN. LIGHT METER S/N CAL DUE DATE FEB-09  
DEVELOPER TYPE ☒ NON AQUEOUS ☐ AQUEOUS ☐ DRY

TEST SURFACE  
SURFACE CONDITION ☐ AS GROUND ☐ AS WELDED ☐ MACHINED ☐ SHOT BLASTED ☒ CLEAN BARE METAL  
SURFACE TEMPERATURE ☐ < -4°C/ 20°F ☐ -4°C/ 20°F TO 10°C/50°F ☐ 10°C/50°F TO 52°C/125°F ☐ > 52°C/125°F

RESULTS- <input type="checkbox"/> METRIC <input type="checkbox"/> IMPERIAL			
ITEM	COMMENTS	ACCEPT	REJECT
1	JOB # 44214	✓	
1	45066	✓	
1	44215	✓	
1	44999	✓	
2	45299	✓	
10	44824	✓	
6	44687	✓	
2	45297	✓	
10	44823	✓	
6	44686	✓	
6	44685	✓	
ALL ITEMS FOUND ACCEPTABLE FOR JOB # 44214			

Scope of Services  
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Standard of Care  
In performing the services provided, Acuren Group Inc. uses the degree, care and skill ordinarily exercised under similar circumstances by others performing such services in the same or similar locality. No other warranty, expressed or implied, is made or intended by Acuren Group Inc.

SIGNATURES  
CLIENT REPRESENTATIVE Matthew M. M. M. PRINT SIGNATURE  
TECHNICIAN (SIGNATURE): Mike Johnston PRINT SIGNATURE  
NAME (PRINT): Mike Johnston 1<sup>ST</sup> TECHNICIAN 2<sup>ND</sup> TECHNICIAN  
CGSB LEVEL II SNT LEVEL II CGSB LEVEL II SNT LEVEL II  
CGSB REG. NO. 6066 CGSB REG. NO. 6066  
DTR #  
REPORT REVIEWED BY:  
NAME INITIALS

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